nwmo
NUCLEAR WASTE MANAGEMENT ORGANIZATION
SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

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NWMO BACKGROUND PAPERS
1. GUIDING CONCEPTS

1-7 DRAWING ON ABORIGINAL WISDOM

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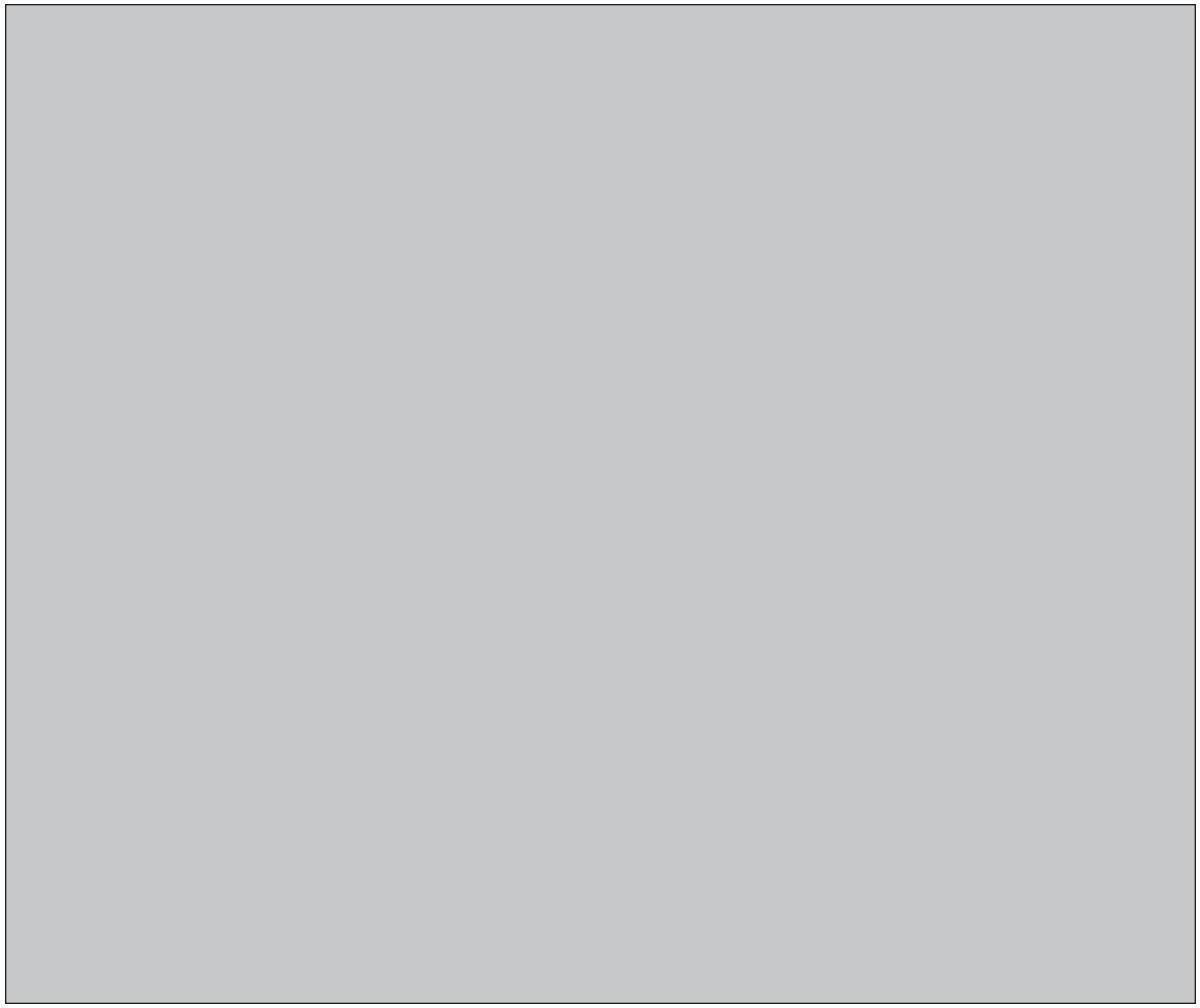

NWMO Background Papers

NWMO has commissioned a series of background papers which present concepts and contextual information about the state of our knowledge on important topics related to the management of radioactive waste. The intent of these background papers is to provide input to defining possible approaches for the long-term management of used nuclear fuel and to contribute to an informed dialogue with the public and other stakeholders. The papers currently available are posted on NWMO's web site. Additional papers may be commissioned.

The topics of the background papers can be classified under the following broad headings:

1. **Guiding Concepts** – describe key concepts which can help guide an informed dialogue with the public and other stakeholders on the topic of radioactive waste management. They include perspectives on risk, security, the precautionary approach, adaptive management, traditional knowledge and sustainable development.
2. **Social and Ethical Dimensions** - provide perspectives on the social and ethical dimensions of radioactive waste management. They include background papers prepared for roundtable discussions.
3. **Health and Safety** – provide information on the status of relevant research, technologies, standards and procedures to reduce radiation and security risk associated with radioactive waste management.
4. **Science and Environment** – provide information on the current status of relevant research on ecosystem processes and environmental management issues. They include descriptions of the current efforts, as well as the status of research into our understanding of the biosphere and geosphere.
5. **Economic Factors** - provide insight into the economic factors and financial requirements for the long-term management of used nuclear fuel.
6. **Technical Methods** - provide general descriptions of the three methods for the long-term management of used nuclear fuel as defined in the NFWA, as well as other possible methods and related system requirements.
7. **Institutions and Governance** - outline the current relevant legal, administrative and institutional requirements that may be applicable to the long-term management of spent nuclear fuel in Canada, including legislation, regulations, guidelines, protocols, directives, policies and procedures of various jurisdictions.

Drawing on Aboriginal Wisdom

A discussion paper considering the value of Traditional Knowledge to the task of providing guidelines for considering the management of nuclear waste in Canada

By: Joanne Barnaby Consulting

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Introduction

The Nuclear Waste Management Organization (NWMO) would like to consult with aboriginal peoples on the use of traditional knowledge and how traditional knowledge can help guide consideration of future nuclear waste management proposals.

Following informal consultations with aboriginal people about the first steps that could be taken to consult aboriginal peoples, it was decided that a workshop be planned and designed focused on traditional knowledge. This idea is also consistent with recommendations from Aboriginal leaders in previous forums addressing the role of aboriginal peoples in this process. This paper is prepared for distribution in advance of the workshop to give participants information about the context of the workshop; to provide background on traditional knowledge; and to provide some 'food for thought' on the ideas to be addressed at the workshop. Further ideas for additional mechanisms for ongoing aboriginal participation in the NWMO process will also be discussed at the workshop.

The Context

The NWMO is charged with studying, as a minimum, three methods for the long-term management of used nuclear fuel, including:

- Deep geological disposal in the Canadian shield
- Reactor site storage (there are seven locations where fuel is currently stored)
- Centralized storage either above or below ground (there are no constraints for a location)

The NWMO study must include:

- A detailed technical description of each approach and economic regions for implementation
- Comparison of the benefits, risks and costs of each approach, as well as ethical, social and economic considerations

- An implementation plan for each approach including:

    - a description of activities & timetable for carrying out the approach and the means to be used to minimize the significant socio-economic effects on a communities way of life or on its social, cultural or economic aspirations, and
    - a program for public consultation
    - A financing system for each proposed approach, including a formula to calculate the annual amount required to finance the approach, and the amounts to be paid by each waste producer, and
    - A summary of comments received by the general public and aboriginal peoples on each proposed approach

NWMO Study Process

The NWMO has developed a study process which includes the following major milestones:

- The design and development of an initial discussion document, describing at a high level the nature of the management approaches under discussion, and the key questions that might be raised for use in a comparative assessment of those approaches – target end of November 2003 and to be used as the basis for in-depth dialogue and deliberations
- The design and development of a second discussion document describing the results of a comparative assessment of the management approaches, for release to the public mid year 2004, again to be used as the basis for in-depth dialogue and deliberations across Canada;
- The release of a draft study report, describing the approaches and an initial discussion of a recommendation, early in 2005
- The release of a final study to government, November 2005.

The NWMO commitment

The NWMO is committed to working with integrity, innovation, professionalism, and accountability. The NWMO will undertake its work in a manner that is both collaborative, and supportive of the principles of sustainability. The NWMO takes seriously the concerns expressed by Aboriginal leaders to the Standing Committee on Aboriginal Affairs, Northern Development and Natural Resources. On November 6, 2001, Grand Chief Mathew Coon Come of the Assembly of First Nation in his submission to the Committee charged with considering the bill to establish the NWMO, said;

> "Our elders advise us that we should think of the impact of our actions seven generations hence. Nowhere is this truer than with respect to the creation and disposal of nuclear waste. The production of energy from nuclear sources is fraught with peril. Disposal of the waste can have unforeseen and potentially dangerous long-term impact, even if managed with the utmost care and caution. Many first nations communities are either in close proximity to a nuclear power plant or research centre or hold traditional territory in areas that may be considered for long-term storage of nuclear fuel waste."

He explained further;

> "Many first nations individuals, communities, and organizations participated in the Seaborn panel, including the AFN, the Assembly of Manitoba Chiefs, the Algonquin of Golden Lake First Nations, the Chippawas of Nawash First Nation, Grassy Narrows First Nation, Walpole Island First Nation, and Sagkeeng First Nation, among others. During the Seaborn panel hearings, these representatives expressed concern that they had not had the opportunity to study the proposals and that the proposals did not incorporate traditional ecological knowledge. The proposals strongly conflict with their deeply held beliefs, and they doubted they would derive any significant benefit from agreeing to accept a nuclear fuel waste facility in their territory."

It is with this background that NMWO has proceeded with ensuring that significant consideration is given to traditional knowledge and that the opportunity requested by aboriginal leaders both within the Standing Committee hearings and prior to that, during the Seaborn panel hearings, is provided. The NWMO had several informal contacts with aboriginal people in the early phase of its work and these discussions demonstrated a clear consensus on the importance of drawing on the wisdom that would come from understanding the role that traditional knowledge could play in the work of the NWMO. The first step in doing this is to host a workshop, the remainder of this paper focuses on traditional knowledge and is designed to prepare the participants for this workshop.

The Importance of Traditional Knowledge

Traditional ecological knowledge and traditional methods of making decisions (TK) are vitally important aspects of everyday life in aboriginal communities. Until recently, TK has been difficult to include in planning and managing development projects because it is held in oral traditions and is in a different format to western science and technology. The challenge for aboriginal people is to be able to use TK in development projects where western science and technology have previously been the dominant information for decision-making. Aboriginal peoples want to have an integral and meaningful role in making decisions about their own future. Development projects are beginning to include traditional knowledge in planning and implementation when aboriginal peoples are directly and sometimes, indirectly affected. Many governments, non-governmental organizations, development agencies, and corporations are interested in the principles that underpin aboriginal peoples' traditional knowledge systems. Some are entering into partnerships with aboriginal communities to research and document components of traditional ecological knowledge that can be used to make resource management decisions in a manner that respects the role of the community in controlling the research methods and the release of information. Others are finding ways to support the inclusion of traditional knowledge in management decisions by inviting representations to be made in planning and management deliberations. The NWMO is committed to building on the large body of work already underway or completed and the progress that is being made in Canada and internationally, to articulate how to work with First Nations and how to use TK appropriately within the public management framework.

Our challenge in this project is collect and share traditional knowledge in a form that is useful to the NWMO, Canada and the aboriginal communities themselves in the broader NWMO initiative outlined above.

What is Traditional Environmental Knowledge?

Traditional knowledge is more than a simple compilation of facts drawn from local, and often remote, environments. It is a complex and sophisticated system of knowledge drawing on centuries of wisdom and experience. It also constantly grows and changes with new information. To use this sophistication one must include the aboriginal peoples themselves as practitioners. Traditional knowledge systems assume that people are part of the land, not that they own the land, so they consider themselves as true guardians. The wisdom derived from this philosophy can be used to advantage when planning for the future.

Traditional Knowledge[1] and the Biodiversity Convention

The United Nations Convention on Biological Diversity recognized the importance of traditional knowledge including traditional environmental knowledge, in conserving and protecting biological diversity worldwide. Article 8(j), in particular, refers to indigenous knowledge and requires that:

> The traditional knowledge of indigenous and local communities be respected, preserved and maintained; that the use of such knowledge should be promoted for wider application with the approval and involvement of the holders of such knowledge; and that they should equitably share in the benefits which arise from the use of their knowledge. (United Nations, 1997: 2)

The Convention, hosted by the United Nations Environmental Program, held a workshop on traditional knowledge and biological diversity to bring together practitioners in the field to discuss the role of indigenous knowledge in biological diversity. It recognized the importance of indigenous and local communities to the conservation and sustainable use of biological diversity.

As others have pointed out, science cannot fill the gaps in ecological information needed to conduct proper environmental assessment and monitoring. As Sallenave (2000: 5) comments:

> Traditional environmental knowledge, which encompasses the biophysical, economic, social, cultural and spiritual aspects of the environment, is in many instances better suited to answer scientists' many questions.

Traditional ecological knowledge emphasizes the inter-relationships between components of the environment and avoids scientific reductionism. Moreover, traditional ecological knowledge views humans as part of the natural environment, not simply as observers or controllers. This view is compatible with concepts of many Canadian First Nations and of the Dene concept of "dè", which is similar to the scientific concept 'ecosystem'. However, where ecosystems concepts are based on the idea that living things exist in association with non-living elements, "dè" is based on the idea that everything has life and spirit. Dè includes the spiritual and physical aspects of the land, people, wildlife and their habitats.

2 The terms traditional knowledge as well as indigenous knowledge are used in this report. Indigenous knowledge refers to knowledge that is specific to a particular locality. Whereas traditional knowledge, as defined in the Workshop on Traditional Knowledge and Biological Diversity, is a term used to describe a body of knowledge built by a group of people through generations living in close contact with nature. It includes a system of classification, a set of empirical observations about the local environment, and a system of self-management that governs resources use (Workshop, 1997: 17). United Nations. Convention on Biological Diversity, Convention Text (1992) Article 2, Use of Terms. Internet: www.biodiv.org/chm/conv/art2/htm., 00/06/27, 2p.

One of the most beneficial outcomes of using traditional knowledge is that it can be used specifically for the following purposes:

- to provide information about the various physical, biological and social components of a particular landscape,
- to assist in establishing rules for using them without damaging them irreparably,
- to clarify and enhance relationships among their users,
- to assist in the development of technologies for using them to meet the subsistence, health, trade and ritual needs of local people,
- to help create a view of the world that incorporates and makes sense of all the above in the context of a long-term and holistic perspective in decision-making (United Nations, 1997: 17).

Working Definition

There has been much controversy and debate about the definition of traditional environmental or ecological knowledge. This controversy has largely centered on the spiritual beliefs of aboriginal peoples and the understandable resistance to the imposition of these beliefs on managers who are involved in resource management questions with aboriginal peoples. While there is little evidence that aboriginal people expect non-aboriginal people to adopt their beliefs, they do expect that they will be respected in their beliefs. To avoid this un-necessary, difficult and time consuming debate in this initiative, it is recommended that a "working definition" approach be taken by the NWMO that focuses on the experience and information available through TK relevant to its mandate. This approach reflects the common interests of the parties involved to consider cumulative effects of the options to be considered while using the best information available.

The following provides the basis for a working definition for TK;

> Traditional Knowledge is knowledge that has been acquired through observation, experiences and interaction of aboriginal peoples with the natural environment over a period of thousands of years. The experience and observations of individuals is shared with members of a "community" and is integrated into collective understandings and interpretations. These interpretations shape behaviors, relationships, beliefs, and socio economic decisions. This shared experience and understanding is passed on from generation to generation orally, through traditions and ceremonies designed to enlighten community members, and through encouraging members to share their own insights, experiences and observations. The knowledge of individuals about specific geographic areas or as people with specific expertise about certain elements, is a normal part of the traditional system. This specialized knowledge, however, is shared openly with the community as a whole, and forms part of the basis for collective understandings. Knowledge is therefore continuously evolving and provides the aboriginal community with the ability to adapt to changes and to predict future outcomes based on past experience. The relationship between people and the natural environment has been informed by this knowledge and has enabled Aboriginal people to use natural resources in a sustainable manner. This same relationship forms the basis of a spiritual understanding of the natural environment. Aboriginal peoples are best equipped to access, interpret, represent and apply the distinct knowledge of their peoples.

How can TK assist industry and governments in environmental management?

Governments are increasingly recognizing the value of TK in Canada and globally. This is evidenced by greater and greater inclusion of TK in research requirements, in licensing land and water use, in co-management regimes, and in assessing potential impacts of development. The numerous United Nations and international initiatives to provide meaningful recognition for TK into a multitude of development initiatives suggests that Canada's own steps will likely increase. The following outlines ways in which TK can assist industry and government in environmental management.

Pre-development baseline: Little or no baseline information about pre-development conditions is available through western science in this region. The "old" knowledge available through TK is crucial to acquiring a clear understanding of pre-development conditions. Without an understanding of pre-development conditions, managers cannot effectively carry out assessments, conduct impact monitoring, or carry out reclamation programs. Attempts to manage cumulative effects without baseline information would be futile.

Being able to distinguish natural ebbs and flows in wildlife and fish populations from development impacts is important to establishing reclamation objectives. TK can provide the historic trends through baseline research of "old" knowledge, needed to effectively inform further development or reclamation plans.

Informing the research agenda: TK can be an effective vehicle for identifying western scientific research needs and priorities. The very differences in the knowledge systems can serve the interests of all concerned and become a new source of strength rather than conflict. If for example, TK holders witness a change in the environment that they do not understand, (and there is sufficient trust by managers that they will identify real change), TK holders may well recommend and actively support scientific research. The very fact that elders witness something new in the environment suggests a very real problem that should receive urgent and immediate attention. The longevity of TK would dismiss a rare but not unusual change.

Classification systems: "New" biological and environmental insights are available through TK. The classification system of Aboriginal peoples sometimes differs from western science because they are based in observable sets of differences (not genetics) and can be more illuminating for management purposes.

Development planning: TK can inform land use or development planning processes effectively to ensure that sensitive areas are protected and that impacts of development activity are limited or mitigated. For example, TK has provided information about fish spawning areas and groundwater flow that was contrary to information available to environmental managers. Follow-up scientific research has verified TK predictions and solved problems science would not otherwise have recognized. With experience and trust built over time, the strengths of each knowledge base adds to the power of the information available to make accurate predictions about environmental effects.

Acquiring needed information: TK can provide an economical means of acquiring environmental information. When TK informs the western science research agenda, the expense of carrying out very time consuming and expensive (and sometimes redundant or inconclusive) research can be reduced. Incorporating TK and TK holders (especially active and knowledgeable harvesters in conjunction with knowledgeable elders) in monitoring initiatives can be both economical and practical. It is cheaper to build on the "field trips" already underway (harvesting activities) than to sponsor trips fully to collect information and samples for impact monitoring purposes.

Preventing problems and conflicts: It can also be economical to involve Aboriginal peoples in all phases of development or reclamation planning and management as it may well result in avoiding costly delays or legal proceedings.

Exercising stewardship: Many Aboriginal peoples believe that they have an inherent responsibility for stewardship over their traditional territory. This sense of responsibility has existed for thousands of years. In recent decades, this lead to the pursuit of recognition of "Aboriginal Rights" as a means of exercising these responsibilities. More recently it has also lead to participation in the regulatory process as a means of affecting decisions made about traditional lands. The use of TK enhances their participation in the regulatory process and increase the quality of environmental management decisions made by all governments.

Providing guidance: Many aboriginal peoples have cultural guidelines that are used in the planning and decision making process. For example, the 'seven generation' teachings require decision makers to consider the impact of their choices on future generations and not just on their own. This practice has contributed to ensuring the sustainability of traditional communities now and in the future.

The Workshop Challenges

The purpose of the workshop is to ensure that the opportunity requested by aboriginal leaders is provided and to ensure that significant consideration is given to traditional knowledge. Expert advice from traditional knowledge holders and leaders will enable the NWMO to address the ways in which traditional knowledge could:

Provide a framework or set of guiding principles for the NWMO as it undertakes its study. Workshop participants for example, will consider the relevance of traditional management principles requiring the consideration of choices on future generations such as the 'seven generation' teachings.

Assist in the assessment of management approaches (options). For example, should criteria include more specific articulation of 'ethical, socio-economic and environmental' considerations where proposals affect aboriginal peoples?

Assist in the development of recommendations and/or guiding principles for the implementation of a **management approach**. How should problems and conflicts be prevented or mediated? What role should aboriginal knowledge play in managing nuclear wastes? How should traditional stewardship responsibilities be exercised?

The Approach

In recognizing the strategic significance in terms of communicating to the aboriginal community of interest, and the public at large, the major national representative aboriginal organizations will be invited to participate in the workshop while ensuring that elders and those working with them in the field of traditional knowledge will also play a role in the formulation of recommendations. Academics specializing in TK will be invited to assist the process.

The workshop will be designed to ensure honest communications of the mandate of the NWMO while respecting the right of participants to bring forward their own issues and concerns.

The Workshop Objectives

Major Objectives:

- Based on traditional knowledge and practices:
  - identify principles that can help guide the NWMO in studying nuclear waste;
  - develop recommendations on what to consider when studying different nuclear waste management proposals
  - identify some of the research and information needs and issues associated with TK
  - Develop suggestions for further consideration of aboriginal wisdom with traditional knowledge holders in subsequent phases of the study process

A workshop agenda will be developed later and sent to invited participants.